FDI and Economic Growth in the Export-Oriented Economy of Fiji: Some Empirical Results

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Abstract
This study examines the role of Foreign Direct Investment (FDI) in Fiji since 1970 to 2010 in the climate of four military coups in this period. In the early stage of industrialization, the government of Fiji turned the island economy into an Export Processing Zone. The objective was to attract foreign direct investors in the various manufacturing industries and then export the finished manufactured products to Australia, New Zealand, European and North American markets. The study analyzes how the spillover and linkage effects between FDI, productivity, domestic investment, and exports impacted economic growth. The results indicate that FDI stock did not lead to the growth success in Fiji due to military coups as it experienced a substantial reduction in FDI over time. However, it was the FDI-driven export sector which was the driving force of economic growth. The study also highlights the challenges that Fiji faced during its development path, lessons that emerging countries can learn from and policy recommendations on how to reposition the economy going forward.

Keywords: Foreign Direct Investment, Economic Growth Modelling, Country Study

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1. Introduction

Both the governments of Fiji and Mauritius turned these island economies into an Export Processing Zone. The importance of FDI in the various sectors is to stimulate growth through capital formulation, employment creation, and technology transfer. The objective was to attract foreign direct investors in the various manufacturing industries and then export the finished manufactured products to European and North American markets in the case of Mauritius, and Australia, New Zealand, European and North American markets in the case of Fiji. This study analyzes how the spillover and linkage effects between FDI, productivity, domestic investment, and exports impacted economic growth. The study also highlights the challenges that Mauritius and Fiji faced during its development path, lessons that emerging countries can learn from and policy recommendations on how to reposition of these two economies going forward.

As a catalyst in the growth of developing countries FDI brings additional sources of capital investment or foreign savings (Lucas, 1988; Romer, 1986). FDI’s role in domestic capital formation also brings productive benefits, it includes employment creation; technology transfers and associated spillover effects; skill development; trade and competitiveness; and access to foreign markets (Kahai, 2004). It increases the profitability of domestic investment; transform the host country’s ownership structure of total investment; and it supplements funding for domestic investment (Bosworth, Collins and Reinhart, 1999, Ghazali, 2010). Analysis of FDI contribution to economic growth has been described as the FDI-led growth hypothesis.

Many studies on the other hand note some potential drawbacks of FDI effects on economic growth (Aitken and Harrison, 1999; Papanek, 1973; Parry, 1988, Salman and Feng, 2009); Vissak and Roolaat, 2005). This is associated with deterioration of a nation’s balance of payments, via transfer pricing, capital/profit repatriation and increasing imports than exports which consequently increases trade deficits (Salman and Feng, 2009). Other weaknesses include over-exploitation of resources, poor generation of linkages, under-utilization of local inputs that reduces the impact on
domestic investment, raising wage and local supply input prices thereby hampering growth and reducing employment, and crowding out of domestic investors.

Based on country-specific experiences the differential views remain, however, the consensus appears that the relationship between FDI and growth can be positive if the host country has the absorptive capacity and the correct level of human capital development (Borensztein et al., 1998), technological and infrastructure development (Hansen and Rand, 2007), and domestic firms and financial systems (Nguyen et al., 2009) in addition to trade and a degree of openness (Balasubramanyam et al., 1996). The volume and magnitude of FDI flows differ from country to country given its level of development or absorptive capacity to realize the potential benefits of FDI.

The endogenous growth model incorporates FDI inflows as an additional input in the production process and its spill-over effects that can influence growth-enhancing factors directly and/or indirectly. We incorporate the effects of FDI inflows on a home country’s specific macroeconomic variables and further include the causal link of FDI inflows on key economic variables. Recent empirical studies on the direction of the causal link between FDI inflows and economic growth have considered the traditional assumption of a one-way causal link from FDI to growth and the possibility of a two-way (bi-directional) or non-existent causality among variables of interest.¹

The paper is structured as follows: in the next section provides a brief analysis undertaken in the context of existing FDI-led growth literature, incorporating insights drawn from recent empirical studies. The specifications and the choice of variables are noted followed by methodology and empirical analysis. The results indicate that it was FDI stock lead to the growth success for Mauritius but in the case of Fiji military coups have a significant adverse effect on growth and reduction on FDI to the island nation. This bi-directional causality is from economic growth to FDI inflows, and FDI inflows to economic growth. The established bi-directional evidence indicates the causality between economic growth and FDI, and in turn, they Granger cause domestic investment. The bi-directional causality implies that foreign direct investment

¹ For China, Tang et al., (2008) find a bi-directional causality between domestic investment and economic growth and a uni-directional causality from FDI to domestic investment and economic growth. They affirm that FDI inflows complement domestic investment and together their effects boost gross domestic product (GDP). FDI’s growth enhancing effect has been noted for India (Srivastava, 2006), Nigeria (Dausa, 2008) and East Asia and Latin America (Zhang (2001), Pakistan (Ghazali, 2010) that stimulates domestic capacity and that FDI inflow is complementary to domestic investment.
is the mechanism through which economic growth causes domestic investment. Final section presents the conclusion.

Models, Variables and Methodology

The effects of FDI are based on two models, i.e. measuring the FDI-economic growth nexus and the causality linkages that identify the direction of causation between the variables of interest, namely FDI, GDP, DINV and Exports. These variables separately indicate the domestic and foreign investment components’ contribution to economic growth, which is crucial for policy-makers in small island economies.

The models estimated follow the tradition of the work by Balasubramanya et al., (1996) in the model specification introduces FDI as an additional input, which directly contributes to output production, via new technologies and other inputs and indirectly through improving human capital or labour and trade openness. Variables included reflect these effects for labour productivity (proxied by industry value added) and how the spillover and linkage effects between FDI, productivity, domestic investment, and exports impact economic growth. The impact of military coups and civil unrest and political strife note that coups had a negative effect on economic growth and investment (see Gounder, 1999, 2002 in the case of Fiji).

The FDI-growth enhancing factors in the production function framework take the following form:

\[GY_t = \alpha_0 + \alpha_1 LProd_t + \alpha_2 LDINV_t + \alpha_3 LFDI_t + \alpha_4 LOPEN_t + \alpha_5 Coup_{DV} + \epsilon_t\]  

(1)

where \(GY\) is growth in gross domestic product, \(LProd\) represents labour productivity, \(LDINV\) is log of domestic investment to GDP ratio, \(FDI\) is foreign direct investment to GDP share, \(LOPEN\) is log of trade openness (sum of export and imports to GDP ratio), \(Coup_{DV}\) is dummy variable for military coups, 0 for the pre-1987 coups period and 1 for post-coups period.

Whilst a positive link between FDI and economic growth is widely supported, the direction of causation remains highly questionable. The causality models can be tested using the error correctional model (ECM) in the VAR systems. There could also be positive feedbacks (uni-directional or bi-directional) or no causality between the variables. The causation between GDP, FDI inflows, DINV and openness based on the autoregressive framework can be specified as follows:
\[ \text{LGDP}_t = \sum_{i=1}^{n} \alpha \text{LGDP}_{t-1} + \sum_{j=1}^{n} \beta_j \text{LFDI}_{t-j} + \sum_{k=1}^{n} c_k \text{LDINV}_{t-k} + \sum_{k=1}^{n} \epsilon_t \text{OPEN}_t + \mu_t \]  

where \( \text{LGDP} \) responds to \( \text{LDINV} \) and \( \text{LFDI} \) in a lag period. The coefficient of \( \beta \) signifies the impact due to change in the mean value of \( \text{LGDP} \) relative to the per unit change in \( \text{LDINV} \) and \( \text{LFDI} \) within the same time period. \( \text{LGDP}_{t-i} \) denotes the distributed-lag and \( \mu \) represents the error term. The model includes other dynamic variables. In addition, it shows the time trend of the dependent variable with regards to its past values. A priori, it is expected that \( \beta_j > 0 \) or \( < 0 \) depending on the direction that exists between \( \text{LFDI} \) and \( \text{LGDP} \) and \( \text{LDINV} \) and Openness.

Data source for annual data on GDP; labour productivity; domestic investment; FDI; and trade openness (exports) are from the World Bank (2012) and Fiji Islands Bureau of Statistics (various). The Autoregressive Distributed Lag (ARDL) approach to cointegration techniques are used to estimate the model.\(^2\) Augmented Dickey-Fuller (ADF) and Kwiatowski, Phillips, Schmidt, and Shin (KPSS) are used for the stationarity of the variables. The Bounds F test indicates the existence of a long run relationship between the variables. A pair wise Granger Causality test is employed to identify the direction of causality between the variables.

**Empirical Results**

The estimated results for FDI-growth nexus, bounds tests and causality estimates are reported in Tables 1, 2 and 3. The ADF and KPSS unit root tests (Appendix Table A1) show the stationarity of the variables in either the level or first difference forms. The Bounds test in the ARDL technique establishes the existence of a long-run relationship (Table 3). The calculated \( F \)-statistic exceeds the upper bound value of 3.99 indicating the existence of the long run relationship between the variables.

**Table 1 Bounds F-Test Results for FDI-Growth Nexus**

<table>
<thead>
<tr>
<th>Model</th>
<th>K-degrees of freedom</th>
<th>90% Critical value bounds</th>
<th>Estimated F test value</th>
<th>Pass/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I(0)</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>Equation 1</td>
<td>6</td>
<td>2.88</td>
<td>3.99</td>
<td>4.70</td>
</tr>
</tbody>
</table>

*Note: The critical value is from Pesaran, Shin and Smith (2001). K is the number of regressors.*

\(^2\) This technique has the advantage of testing the long-run relationship amongst the variables when the sample size is small and can correct for possible endogeneity of the explanatory variables (Pesaran, Shin and Smith, 2001).
FDI-Growth Nexus: Results

The estimated ARDL coefficients, based on the Swartz Information Criterion, are presented in Table 2 for long-run and short-run error correction representation. The equations have a relatively high explanatory power and the model diagnostics indicate no concern. The labour productivity (LProd) coefficient is positive and significant providing support to the view that labour productivity increases growth significantly. This estimated effect is also seen in the short-run that has a potentially influence on growth. Significance in the long-run impact is due to higher skilled labour that adds to the productive sectors and has a spill-over effect to other sectors of the economy.

The estimated negative domestic investment shows an immediate adverse impact and it did not increase substantially over time. The computed long run effect shows a positive coefficient but it is not significant. The effects of coups since 1987 have affected the domestic investor confidence, particularly after the coups in 2000 and 2006. Low domestic investment levels in Fiji suggest that the economy requires a substantial boost in investment and improve investor confidence. The estimated FDI impact though positive is not significant and has a very small magnitude. This reflects a slowdown in FDI flows. While Fiji government, since independence, moved towards an export processing zone with the objective to attract FDI in various manufacturing industries, the coups adversely affect the decisions of the investors due to high risk and uncertainty created by political instability. Also other island nations in the South Pacific have attracted FDI at the cost of Fiji’s instability.

Table 2 Results for FDI-Growth Nexus

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Estimate</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GY = -0.42GY(-1) + 11.94Lprod - 0.20DDINV + 0.35DDINV(-1) + 12.01LOPEN + 0.05LFDi + 2.68Coupss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.02) (1.77) (0.12) (1.82) (1.70) (0.02) (1.73)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R² = 0.38</td>
<td>F(7, 29) = 2.50**</td>
<td>DW = 2.16</td>
<td>Durbin’s h = -1.24</td>
</tr>
<tr>
<td>Model Diagnostics: SCx²(1) = 0.75, FFx² (1) 0.34, NN x²(2) 0.88, Hx²(1) 0.57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Long-run Impact:

GY = 8.48Lprod + 0.23DDINV + 8.48LOPEN + 0.003LF Di - 1.89Coupss
(1.77) (1.10) (1.76) (0.02) (1.76)

Short-run Error Correction Model

GY = -84.01 + 11.93ΔLprod - 0.02ΔDDINV + 12.01ΔLOPEN + 0.005 ΔLF Di - 2.68Δcoupss - 1.42ECM(-1)
(2.44) (1.77) (-0.10) (1.70) (0.02) (1.73) (9.42)

R² = 0.78 | F(6, 30) = 17.46*** | DW = 2.165

Notes: *** , ** , * significant at the 1, 5 and 10% level, respectively, t-ratios are in brackets. DW is Durbin Watson, SC is serial correlation, FF is Functional Form, N is Normality of residuals, H is Heteroskedasticity. Critical values for x²(1)=6.67 and x²(2) = 9.97.
The estimated measure for the degree of trade openness (LOPEN) shows a strong positive impact on economic growth in both the long-run and the short-run periods. The long run impact implies that a 1% increase in trade openness raises economic growth by 8.48%. This suggests that openness of the economy complements foreign investment; trade liberalisation and tax incentives; and opening up of various sectors of the economy, which support exports, imports and growth. Given that most investment projects are directed towards the tradable sector, the degree of openness to international trade exerts a major influence on economic growth in Fiji.

The Coups have adversely affected economic growth in Fiji since 1987 that caused risk and uncertainty in various sectors of the economy. While a new Constitution was implemented in 1997 and a democratic election held in 1999 the level of stability did not persist. The 2000 coup destabilised the economy while the 5 year period since then has not been long enough to return investor confidence and other activities to enhance growth. Moreover, the 2006 military coup led to prolonged political and economic instability. The estimated negative coup coefficient shows an immediate short run adverse impact while the long run coefficient indicates that the adverse effect continues in the long run. The adverse effects since 1987 led to an outflow of skilled labour and decline in domestic investment, FDI flows and export levels. The ECM result indicates that the economy returns to long run equilibrium after the short-term disturbances.

The results reflect the importance of domestic sectors (labour productivity, trade openness, domestic investment). Fiji government has undertaken liberation of FDI and trade policies, however any increased investment opportunities and trade requires political stability to take advantage of the nation’s comparative advantage in the export sector. This supports the view of Balasubramanyam et al., (1996) that a more open trade policy framework promotes efficient allocation of investment to productive sectors that have comparative advantage in trade, thereby complements growth.

**Causality Results**

The Granger causality results between FDI, DINV, Exports and GDP are presented in Table 5. In Column 1 (LFDI is the dependent variable), both LDINV and LGDP are not significant, thus the causality test accepts the null hypotheses that “LDINV does not Granger cause LGDP” and vice versa that “LGDP does not Granger cause LDINV”. This suggests no causality between LDINV and LGDP and in turn, they do
not Granger cause LFDI. The result provides no evidence that both domestic investment and economic growth promote FDI inflows and builds up the absorptive capacity of Fiji to enhance the benefits of FDI inflows. The possibility of no causal relationship between economic growth and domestic investment to increase FDI inflows is that during the period of instability (military coups) FDI inflows were low due to high risk and uncertainly seen over the period 1987 to 2006.

Table 5 Results of Granger Causality Test among FDI, DINV and GDP

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>∆LFDI (Column 1)</th>
<th>∆LDINV (Column 2)</th>
<th>∆LOPEN (Column 3)</th>
<th>∆LGDP (Column 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-Stats Probability</td>
<td>F-Stats Probability</td>
<td>F-Stats Probability</td>
<td>F-Stats Probability</td>
</tr>
<tr>
<td>∆LFDI_\text{i}</td>
<td>0.49 0.61</td>
<td>2.99 0.06*</td>
<td>0.68 0.51</td>
<td>1.54 0.23</td>
</tr>
<tr>
<td>∆LDINV_\text{i}</td>
<td>0.63 0.54</td>
<td>2.74 0.07*</td>
<td>1.42 0.25</td>
<td>2.75 0.08*</td>
</tr>
<tr>
<td>∆LGDP_\text{i}</td>
<td>0.33 0.80</td>
<td>-0.18 0.08*</td>
<td>0.59 0.53</td>
<td>-0.07 0.10*</td>
</tr>
<tr>
<td>Causality</td>
<td>No causality</td>
<td>GDP FDI</td>
<td>No causality</td>
<td>DINV FDI</td>
</tr>
</tbody>
</table>

*Note: **, * indicates significance at the 5 and 10% levels, respectively.*

The results in Column 2, for LDINV as the dependant variable, the null hypothesis that “LGDP does not Granger cause FDI” and that “LFDI does not Granger cause LGDP” is rejected at the 10 percent significance level. This bi-directional causality is from economic growth to FDI inflows, and FDI inflows to economic growth. The established bi-directional evidence indicates the causality between economic growth and FDI, and in turn, they Granger cause domestic investment. The bi-directional causality implies that foreign direct investment is the mechanism through which economic growth causes domestic investment. This supports the view by DeMello (1999) that FDI’s growth enhancing effect is possible only when it stimulates domestic capacity of the host economy and that FDI inflow is complementary to domestic investment. Thus, FDI inflows provide more investment opportunities to increase domestic investment. Results support the view that fast growing economies attract significant FDI inflow (Dauda, 2008; Srivastava, 2006; Zheng, 2009).

The results in Column 3 (LOPEN as the dependent variable), indicates that both LFDI and LGDP are not significant, thus both we accept the null hypotheses that “LFDI does not Granger cause LGDP” and vice versa that “LGDP does not Granger cause FDI”
cause LFDI”. This result provides no evidence that both foreign investment and economic growth promote openness. As most of the exports are mainly by domestic investment the result indicates low foreign investment levels in the export sector.

In Column 4, the null hypothesis that “LDINV Granger does not cause LFDI” is rejected at the 10 percent significance level while the causality test accepts the null hypothesis that “LDINV Granger does not cause LFDI” as it is not significant. This means the direction of causality is from LDINV to FDI inflows, than in the opposite direct. The evidence suggests that domestic investment causes FDI inflows which in turn Granger causes economic growth. The uni-direction causality implies that domestic investment is the mechanism through which foreign investment causes economic growth. This indicates that domestic investment is one of the most crucial factors or channels for driving FDI flows. It also act as a catalyst for economic growth which means that higher capital accumulation causes higher economic growth and paves the path of resource availability (e.g. better infrastructure, labour, markets) for FDI. It lends some supports to the theoretical viewpoint that FDI inflows have a complementary effect on domestic investment, and that both have complementary effects on economic growth (Tang et al., 2008).

The estimated long-run lagged error correction term in Columns 2 and 4 are significant at the 10 percent level. This re-affirms the results from the bounds test for co-integration and the short-run results and indicates that in the both LDINV and LGDP Granger cause LFDI. This suggests that the linkage runs interactively through the error correction term from domestic investment and economic growth to FDI inflows. The coefficient of the lagged error term for in columns 2 and 3 are also negative and significant which imply that the linkage runs interactively through the error correctional term from economic growth to FDI inflows to domestic investment.

**Conclusion**
The study presents an understanding of the role of foreign direct investment to enhance growth in the export-oriented economies of Fiji and Mauritius. The empirical findings for Fiji show that FDI and the main growth-enhancing national factors like domestic investment, labour productivity and trade openness have a positive and significant impact on economic growth with a much stronger influence from trade openness. This suggest that a highly open economy and domestic investment is vital
during the early stages of economic development as it stimulates growth in trade and FDI inflows, thus leading to higher economic growth. The results also affirm that civil unrest and political strife adversely affect economic growth in Fiji. FDI inflows have been adversely affected by the military coups which provide strong evidence that such investment is highly vulnerable to domestic political instability. In addition, this may lead to capital flights and low re-invested earnings.

The uni-directional Granger causality from economic growth to FDI inflows and to domestic investment imply that economic growth has a large influence on FDI and domestic investment and it is therefore crucial to increase growth enhancing factors. Thus, higher economic growth will attract more FDI inflows and this in turn will stimulate domestic investment. The bi-directional relationship between economic growth and domestic investment signifies that economic growth promotes domestic investment and vice versa domestic investment promotes economic growth and jointly they cause FDI inflows. Furthermore, this nexus between FDI inflows and domestic investment influences domestic investment that exerts a major influence on the level of FDI inflows. By stimulating domestic investment, Fiji can promote inflows of FDI and this in turn will have an additional positive impact on domestic investment and economic growth.

Reference


### Appendix Table A1 Unit Root Test Result for Fiji

<table>
<thead>
<tr>
<th>Variables</th>
<th>Constant and No Trend</th>
<th>Constant and Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADF</td>
<td>KPSS</td>
</tr>
<tr>
<td>Level Series</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GY</td>
<td>-1.92***</td>
<td>0.73</td>
</tr>
<tr>
<td>Lprod</td>
<td>-1.76</td>
<td>0.13</td>
</tr>
<tr>
<td>LDINV</td>
<td>-2.56</td>
<td>0.14</td>
</tr>
<tr>
<td>LFDI</td>
<td>-5.54***</td>
<td>0.13</td>
</tr>
<tr>
<td>LOPEN</td>
<td>-4.22**</td>
<td>0.17</td>
</tr>
<tr>
<td>First difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GY</td>
<td>-4.61***</td>
<td>0.08</td>
</tr>
<tr>
<td>Lprod</td>
<td>-6.39***</td>
<td>0.09</td>
</tr>
<tr>
<td>LDINV</td>
<td>-8.33***</td>
<td>0.12</td>
</tr>
<tr>
<td>LFDI</td>
<td>-11.20***</td>
<td>0.17</td>
</tr>
<tr>
<td>LOPEN</td>
<td>-5.86***</td>
<td>0.17</td>
</tr>
</tbody>
</table>

*Note: Critical values for ADF test for constant and no trend (with constant and trend) are -3.61 (-4.21) and -2.93 (-3.53) at the 1% and 5% significance levels respectively. Critical value for the KPSS test for constant and no trend (with constant and trend) is 0.73 (0.216) and at the 1% significant level. *** and ** denote significance at the 1% and 5% levels, respectively.

Legend: GY is growth in real gross domestic product, Lprod is labour productivity, LDINV is log of domestic investment, LFDI is log of foreign direct investment flow, LOPEN is log of trade openness.*